

KORELASI KESANGGUPAN KARDIOVASKULAR DENGAN FUNGSI KOGNITIF PADA SISWA SMA NEGERI 1 BATURRADEN

ABSTRAK

Latar Belakang: Fungsi kognitif memiliki peran penting dalam proses belajar dan pencapaian akademik. Kesanggupan kardiovaskular berkontribusi terhadap optimalisasi fungsi otak melalui peningkatan aliran darah serebral, neurogenesis, serta pelepasan faktor neurotropik seperti VEGF dan BDNF yang mendukung neuroplastisitas.

Tujuan: Penelitian ini bertujuan untuk mengetahui korelasi antara fungsi kognitif dengan kesanggupan kardiovaskular pada siswa laki-laki SMA Negeri 1 Baturraden.

Metode: Penelitian ini merupakan penelitian analitik observasional dengan desain *cross-sectional*. Sampel terdiri dari 29 siswa laki-laki yang dipilih menggunakan teknik *purposive sampling*. Fungsi kognitif diukur menggunakan *Montreal Cognitive Assessment* versi Indonesia (MoCA-Ina), sedangkan kesanggupan kardiovaskular diukur menggunakan *Harvard Step Test*. Data dianalisis menggunakan uji korelasi Spearman.

Hasil: Hasil penelitian menunjukkan adanya korelasi positif yang signifikan antara kesanggupan kardiovaskular dan fungsi kognitif ($r = 0,750$; $p = 0,000$). Rata-rata skor MoCA-Ina adalah 23,48 (kategori di bawah nilai normal) dan rata-rata skor *Harvard Step Test* adalah 76,97 (kategori cukup).

Kesimpulan: Terdapat korelasi positif yang kuat antara fungsi kognitif dan kesanggupan kardiovaskular pada siswa. Peningkatan kesanggupan kardiovaskular berkaitan dengan peningkatan performa kognitif, sehingga aktivitas fisik yang teratur penting untuk mendukung kebugaran jantung dan perkembangan fungsi kognitif remaja.

Kata kunci: kesanggupan kardiovaskular, fungsi kognitif, MoCA-Ina, *Harvard Step Test*, remaja

***CORRELATION BETWEEN CARDIOVASCULAR FITNESS AND COGNITIVE
FUNCTION AMONG SENIOR HIGH SCHOOL STUDENTS OF SMA NEGERI 1
BATURRADEN***

ABSTRACT

Background: Cognitive function plays a vital role in learning processes and academic achievement. Cardiovascular fitness supports optimal brain performance through improved cerebral blood flow, neurogenesis, and the release of neurotrophic factors such as VEGF and BDNF, which enhance neuroplasticity.

Objective: This study aimed to determine the correlation between cognitive function and cardiovascular fitness among male students of SMA Negeri 1 Baturraden.

Method: This analytic observational study used a cross-sectional design. A total of 29 male students were selected using purposive sampling. Cognitive function was measured using the Montreal Cognitive Assessment–Indonesian Version (MoCA-Ina) and cardiovascular fitness was assessed using the Harvard Step Test. Data were analyzed using the Spearman correlation test.

Results: The results revealed a significant positive correlation between cognitive function and cardiovascular fitness ($r = 0.750$; $p = 0.000$). The mean Harvard Step Test score was 76.97 (moderate category), and the mean MoCA-Ina score was 23.48 (below normal cognitive function).

Conclusion: There is a strong positive correlation between cognitive function and cardiovascular fitness among students. Improved cardiovascular capacity is associated with better cognitive performance, emphasizing the importance of physical activity in enhancing cardiovascular endurance and supporting cognitive development in adolescents.

Keywords: cardiovascular fitness, cognitive function, MoCA-Ina, Harvard Step Test, adolescent